Feb. 12, 1924. 1,483,526

W. H. SMITH

FEEDING DEVICE

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Fig. 1

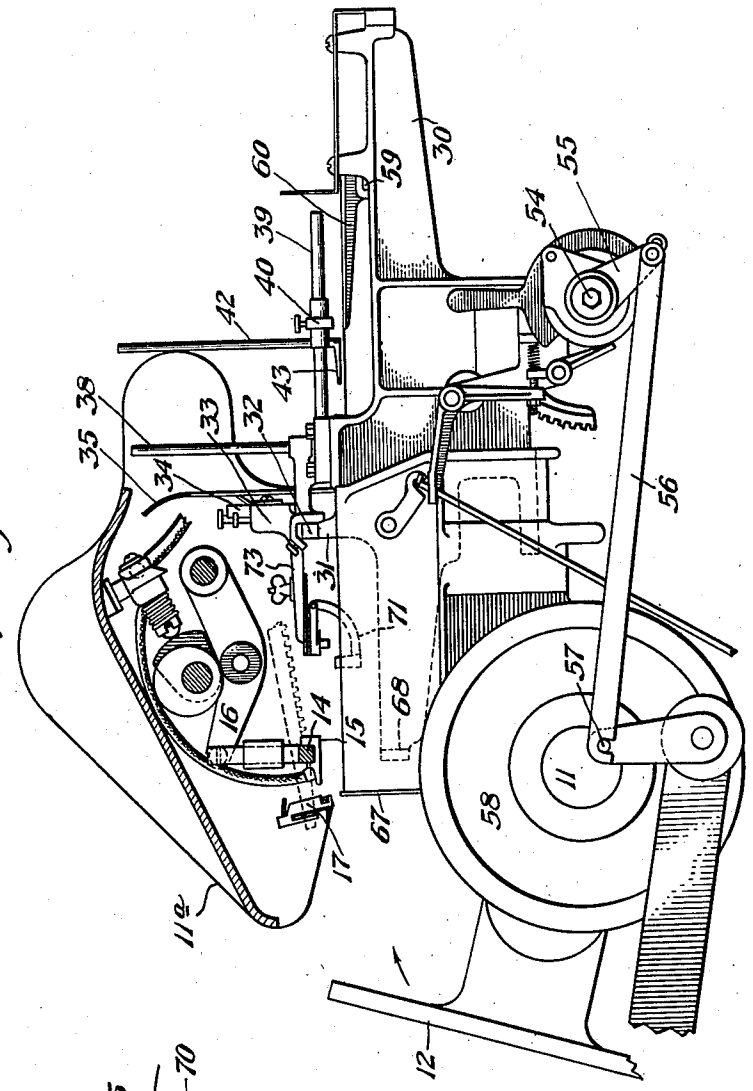
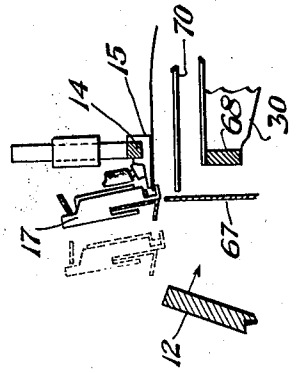



Fig. 5




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Fig. 2

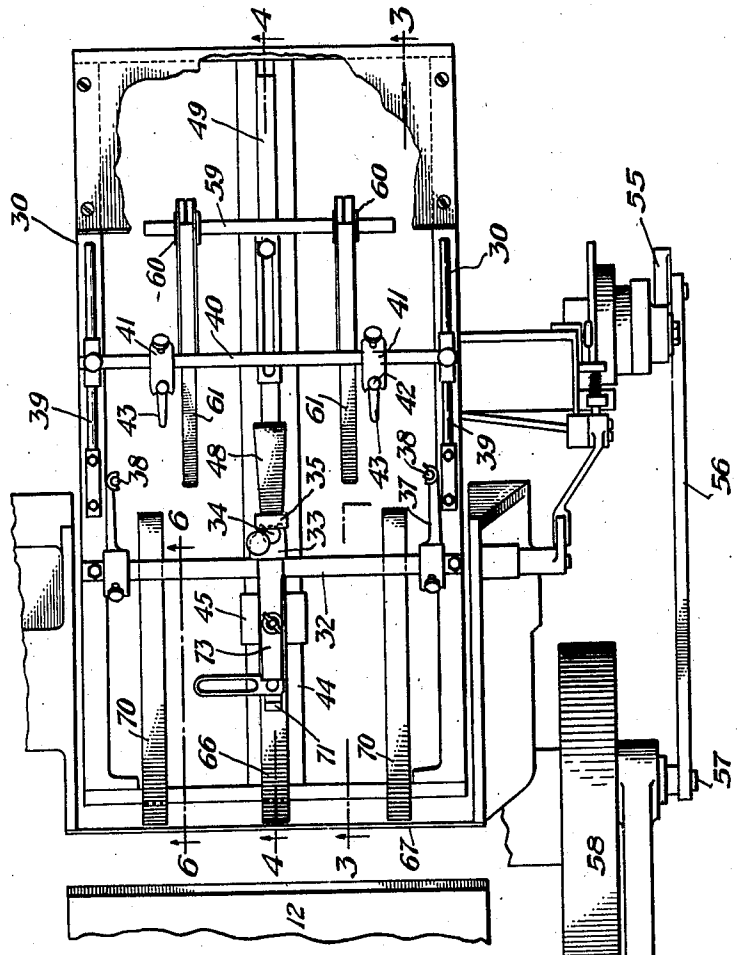
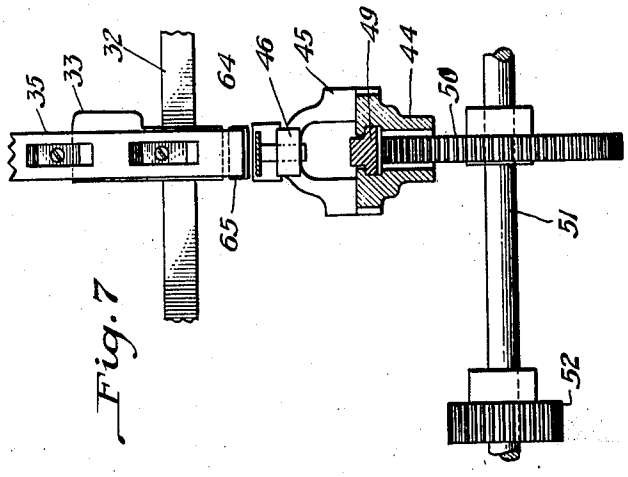



Fig. 7




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FEEDING DEVICE

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Fig. 3

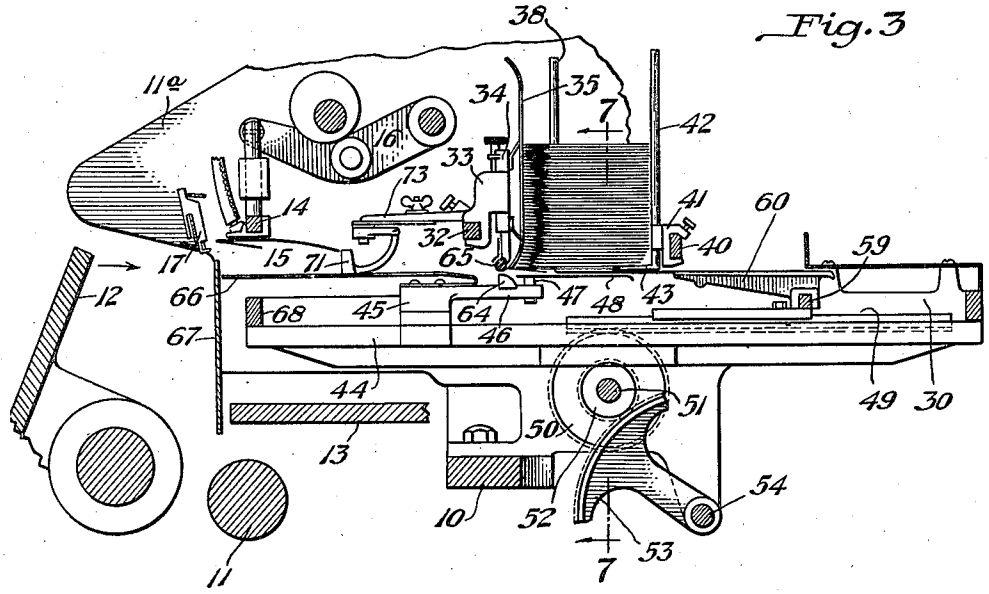



Fig. 4

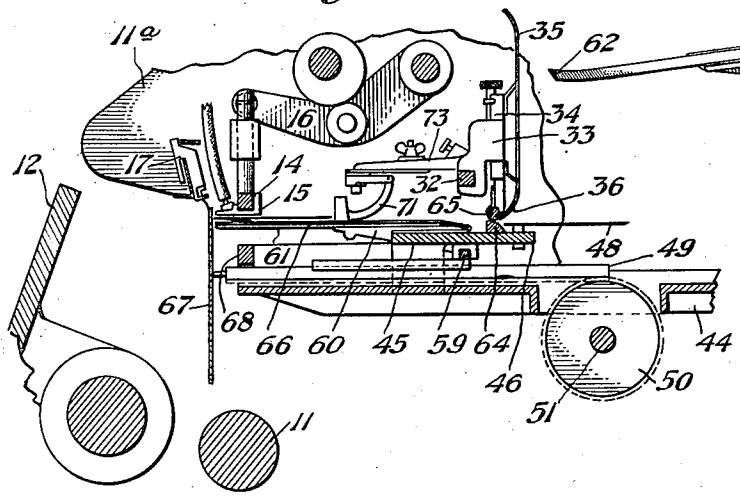



Fig. 8

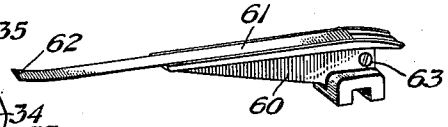
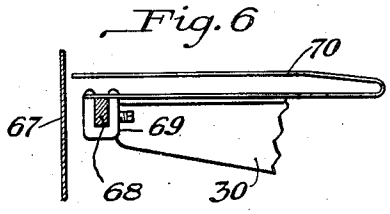



Fig. 6




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Patented Feb. 12, 1924. 1,483,526

# UNITED STATES PATENT OFFICE.

WALTER H. SMITH, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR TO MILLER SAW-TRIMMER COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

## FEEDING DEVICE.

Application filed January 7, 1922. Serial No. 527,603.

*To all whom it may concern:*

Be it known that I, WALTER H. SMITH, a subject of the King of Great Britain, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented new and useful Improvements in Feeding Devices, of which the following is a specification.

My invention pertains to feeding devices, and especially to feeding devices for printing presses.

In the feeding of ordinary sheets of paper to a printing press, it is common, as in the case of the device known to the trade as the Miller platen press feeder, to support the pile of sheets upon a table which is automatically elevated as the height of the pile is reduced by reason of the sheets being successively fed away therefrom. This is considered an advantageous method in the feeding of ordinary sheets. In the case, however, of made-up envelopes, cards and some other blanks, this method of feeding from an automatically elevated table is not always considered as advantageous as it is in the case of feeding ordinary sheets. For instance, a relatively small number of envelopes takes up a relatively large vertical space on such an automatically elevated table; and as soon as this relatively small number is exhausted, it is necessary to replenish the pile on the table, which generally necessitates the stopping of the operation of the feeder. It is an object of my invention, therefore, to provide a feeding device for platen presses in which the ordinary sheets may be fed from an automatically elevated table, when desired, whilst made-up envelopes, cards and simlar blanks may be fed from a device which will allow the stock to be continuously replenished without stopping the feeder, when that method is considered more advantageous. I effect this object by providing a readily attachable and detachable device which will feed blanks continuously, and which, when in use, will replace the automatically elevated stock table which is employed when ordinary sheets are to be fed.

As an example of an embodiment of my invention I have described in the following specification, and shown in the accompanying drawings a form of feeding device constructed in accordance with my invention. It is to be understood, however, that changes may be made in the form described and shown, and that the invention can be embodied in other forms without exceeding the scope thereof, as defined in the appended claims.

In the drawings:

Fig. 1 is a side elevation of a feeding device constructed in accordance with my invention, the upper part being shown in section;

Fig. 2 is a plan of the same, with the upper part of the mechanism removed;

Fig. 3 is a section on the line 3—3 of Fig. 2 looking in the direction of the arrows;

Fig. 4 is a section on the line 4—4 of Fig. 2, but showing a different position of the parts;

Fig. 5 is a detail section, similar to Fig. 4, but showing still another position of the parts;

Fig. 6 is a detail section taken on the line 6—6 of Fig. 2, and showing one of the adjustable resilent blank supports;

Fig. 7 is an enlarged section taken on the line 7—7 of Fig. 3, showing the pusher slide and the means for actuating the same; and

Fig. 8 is a perspective view showing one of the blank-pushers.

My invention, as herein described, is carried into effect by the provision of a device for continuously feeding blanks, particularly made-up envelopes, which device is of such a construction and nature that it can operate in place of the automatically elevated stock table which forms part of the machine known to the art as the Miller platen press feeder, a type of which machine is described in Patent No. 1,194,327 issued August 8, 1916, on the application of Edward Cheshire. The said Miller platen press feeder, briefly described, includes a base 10 which is attached to the frame of a platen printing press, such press including a driving shaft 11 and a platen 12, which latter rocks between a printing position and a sheet-receiving position. The feeder base 10 carries a removable hood $11^a$ upon which many of the feed parts are mounted. In the base 10 is mounted a stock table 13 provided with means whereby it is automatically elevated to compensate for the loss of height due to the removal of sheets therefrom. The hood

11ª carries a separator bar 14 upon which are adjustably mounted a plurality of pneumatic separator feet 15, the bar being mounted upon vertically slidable posts which are connected with cam-actuated levers 16, whereby said separator bar is depressed and raised at each cycle of the machine. The hood 11ª also carries a reciprocating carriage upon which is mounted a plurality of sheet grippers 17. These grippers move from the position indicated in Fig. 5 out over the platen, depositing a sheet thereon, and then return to the position shown in full lines in Figs. 3 and 4 and in dotted lines in Fig. 5. Just before making another outward movement over the platen they make a small inward movement from the position shown in dotted lines in Fig. 5 to the position shown in full lines in said figure. In operation, the separator bar 14 descends so as to cause the separator feet 15 to engage the top sheet of the pile of stock carried by the stock table 13. The top sheet attaches itself to the separator feet 15, and, when the separator feet rise again, is lifted with them to a position opposite the feed grippers 17. The feed grippers then make the small inward movement above referred to, seize the sheet, which is thereupon released by the separator feet 15, and carry it out over the platen. This is an especially advantageous method of feeding ordinary sheets of paper.

In carrying out my invention, I provide an auxiliary feeding device for use with made-up envelopes and similar blanks, which device will, in operation, take the place of the automatically elevated table 13, and supply the blanks to the feeding elements which carry them onto the platen. The said auxiliary feeding device comprises a frame 30 which is secured to the feeder base 10 in such a way that its front part enters the space normally occupied by the stock table 13 or the pile of stock which it carries. In order to admit of insertion of the frame 30, the stock table 13 is locked in the depressed position shown in Fig. 3.

The frame 30 is provided, at each side, with a standard 31, said standards being connected by a cross bar 32. Secured to the cross bar 32 is a block 33, in which is mounted so as to be capable of vertical adjustment, a slide 34. To this slide is secured a front stock guide 35, the lower end of which is curved forwardly, as indicated at 36, for a purpose hereinafter to be described. Extending rearwardly from the cross bar 32, and adjustable longitudinally thereof, are a pair of arms 37, which carry side stock guides 38. By moving the arms 37 on the cross bar 32, the side stock guides 38 may be adjusted towards and away from each other, to accommodate blanks of varying sizes. Extending rearwardly from the standards 31 are a pair of side rails 39, on which are slidably mounted sockets which are provided at the ends of a cross rail 40. Brackets 41 are mounted on the cross rail 40, so as to be adjustable longitudinally thereof, and carry rear stock guides 42 having forwardly extending feet 43 at their lower ends. The cross rail 40 can be adjusted on the side rails 39 so as to move the rear stock guides 42 in accordance with the width of blank to be fed. The brackets 41 can likewise be adjusted on the cross rail 40, in accordance with the length of the blank. Extending longitudinally of the frame 30 is a central guide bar 44, having secured thereto a block 45 formed with a rearward extension 46, to which extension is secured a post 47 carrying a support plate 48. The parts, as thus far described, constitute a receptacle for the blanks—in this case envelopes—to be fed. A stack of the envelopes is placed between the guides so as to rest, at the center of their front parts, on the plate 48, and, at their rear parts, on the feet 43 which extend forwardly from the rear guides 42. The front edges of the envelopes engage the front guide 35, the rear edges engage the rear guides 42, and the side edges engage the side guides 38. As the pile of envelopes is depleted, it can be replenished by simply dropping in a new supply from the top, no interruption of the feeding being necessary.

Mounted in a suitable guide way formed in the guide bar 44 is a slide 49 having a gear rack formed on its lower face. With this rack engages a gear wheel 50 carried by a rock-shaft 51 extending transversely of the frame 30 and mounted in suitable bearings therein. The rockshaft 51 is provided with a pinion 52 with which engages a toothed segment 53 carried by a crank shaft 54, also mounted in the frame 30. The crank shaft 54 is provided with a crank 55, which is connected by a link 56 with a crank pin 57 carried by the usual disk 58 mounted on the drive shaft 11 of the press. It will be seen that as the drive shaft 11 rotates, the crank shaft 54 and the rock shaft 51 will be rocked forward and backward in their bearings, the rocking movement of the shaft 51 effecting, through the gear 50, a forward and backward reciprocation of the slide 49.

The slide 49 has secured thereto, so as to be adjustable longitudinally thereof, a cross bar 59 on which are adjustably mounted brackets 60. Clamped in the brackets 60 are pushers 61 which take the form of flat spring strips having their forward ends bent slightly upward, as at 62. The brackets 60 are split longitudinally, and may be sprung together by means of screws 63. By this means their hold upon the pushers 61 may be loosened at will, to permit lengthwise adjustment of the pushers

with respect to the brackets. In the rearward movement of the slide 49, the front ends of the pushers 61 pass to the rear of the flap of the lowermost envelope of the pile. In the subsequent forward movement of the slide, the pushers 61 enter between the flap and the body of the lowest envelope (Fig. 3) and subsequently engage in the fold of the flap. In the continued forward movement of the pushers, the lowermost envelope is carried with them and is thus fed forward away from the remainder of the stack of envelopes.

In order to prevent more than one envelope from being fed forward, a choke block 64 is mounted on the forward extension 46 of the block 45. This choke block is curved upwardly and forwardly, its top surface being approximately on a level with the support plate 48, and cooperates with a choke member 65, preferably formed of rubber, carried by the lower end of the vertically adjustable slide 34. The height of the slide 34 is so adjusted that there will be enough space between the choke members 64 and 65 to permit one envelope to be carried therethrough by the pushers 61, but not enough space to allow more than one envelope to pass therethrough. The effect of the continued action of the pushers 61 will be to fan forward the front parts of the lowermost few envelopes of the pile, as shown in Fig. 3, this being permitted by the forwardly curved lower end 36 of the front guide 35. Thus there will always be an envelope with its edge substantially engaging in the choke aperture, ready to be pushed forward at the next stroke of the pushers 61.

Secured to the block 45 is a horizontally disposed resilient central support strip 66, extending forwardly so that its end comes into close proximity with the front plate 67 of the feeder base 10. The frame 30 is provided, at its front part, with a transverse bar 68 to which are secured, so as to be adjustable lengthwise thereof, a pair of brackets 69 on which are mounted resilient side support strips 70. The center strip 66 and the side strips 70 serve to support the envelope after it has been pushed forward onto these strips (Fig. 4) by the pushers 61. To prevent rearward movement of the envelope after it has been pushed forward, I provide a pivoted latch member 71 which rests lightly on the central support strip 66. The envelope may readily be pushed beneath the latch member 71; but, on the envelope passing beyond the latch member, the latter drops into position behind it, and thus prevents any rearward movement of the envelope. The support to which this latch member 71 is pivoted is carried by an arm 73 which extends forward from the block 33, and is adjustable on said arm, allowing the position of the latch member 71 to be adjusted so that the latch member will fall into place accurately behind the edges of envelopes of different widths.

In the position of the parts shown in Fig. 3, the pushers 61 are in their rearmost position and are just entering beneath the flap of the bottom envelope of the pile. The envelope which has previously been fed forward is suspended in a position where it will be seized by the feed grippers 17 when they make their slight rearward movement to receive it. From this position, the sheet pushers 61 move forward, carrying the bottom envelope with them past the choke member and onto the spring strips 66 and 70, the latch member 71 falling behind the rear edge of the envelope. By this time the feed grippers 17 will have moved out over the platen and back again and the separator bar 14 will have descended to bring the separator feet 15 into contact with the envelope resting upon the spring strips 66 and 70. This is the position of the parts shown in Fig. 4. The separator bar 14 will then rise, and its separator feet 15 will carry with them the envelope, lifting the latter to the position shown in Fig. 3, where it will be supported until the feed grippers 17 make their rearward movement and seize it, as shown in Fig. 5.

My invention permits of two methods of feeding being employed in connection with one machine. When the ordinary sheets are to be fed, the elevating table 13 is used and the sheets taken from it by the separator feet 15. When made-up envelopes are to be fed, it is only necessary to lock the table 13 and attach the frame 30 with its associated parts, whereupon the advantages of a continuous feeder are immediately obtainable. The same delivery devices, etc., are used in both methods of feeding.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is:

1. The combination with a feeding mechanism comprising feed means and a stock table associated with said feed means, of a secondary feeding device for substitution in operation for said stock table, said secondary device having a feeding association with the feed means of said first-named mechanism.

2. The combination with a feeding mechanism comprising feed means, a stock table, and pneumatic means for moving sheets from said stock table to said feed means, of a secondary device for substitution in operation for said stock table, said secondary device including means for feeding blanks to said pneumatic means.

3. The combination with a feeding mechanism comprising feed means and a stock table associated with said feed means, of a

secondary device for substitution in operation for said stock table, said secondary device comprising means for receiving a supply of blanks and means for separating said blanks singly, said separating means having a feeding association with the feed means of said first-named mechanism.

4. The combination with a feeding mechanism comprising feed means and a stock table associated with said feed means, of a secondary device for substitution in operation for said stock table, said secondary device comprising means for receiving a supply of blanks and means for separating said blanks one by one from the balance of the supply, and feeding them towards the feed means of said first-named mechanism.

5. The combination with a platen press feeder comprising a feed gripper, means for moving said gripper forward and back over the press platen, and a stock table associated with said gripper, of a secondary device for substitution in operation for said stock table, said secondary device comprising means for receiving a supply of blanks and means for separating said blanks singly, said separating means having a feeding association with said feed gripper.

6. The combination with a platen press feeder comprising a feed gripper, means for moving said gripper forward and back over the press platen, and a stock table associated with said gripper, of a secondary device for substitution in operation for said stock table, said secondary device comprising means for receiving a supply of blanks and means for separating said blanks one by one from the balance of the supply, and feeding them towards said feed gripper.

7. The combination with a platen press feeder comprising a feed gripper, means for moving said gripper forward and back over the press platen, and a stock table associated with said gripper, of a secondary feeding device for substitution in operation for said stock table, said secondary device having a feeding association with said feed gripper.

8. The combination with a platen press feeder comprising a reciprocating feed gripper, a stock table, and a support for said stock table, of a secondary device for detachable connection with said support, said secondary device comprising means for receiving a supply of blanks and means for separating said blanks singly and feeding them towards said gripper.

WALTER H. SMITH.

Witnesses:
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MARIE L. REICK.